

PIPE CULVERTS
NHSN-006-4(192)--2R-50

JASPER CO.

LETTING DATE
07-20-2021



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

JASPER COUNTY

PIPE CULVERTS

0.5 mi N. of I-80 in Newton

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



REVISIONS

TOTAL

PROJECT IDENTIFICATION NUMBER

20-50-006-010

PROJECT NUMBER

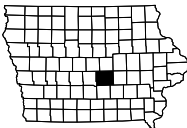
NHSN-006-4(192)--2R-50

R.O.W. PROJECT NUMBER

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
A.3 - 4	Field Exam Notes
A.5 - 7	Project Concept
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 3	US 6 As-Built & Plan Sheet Information
G Sheets	Survey Sheets
G.1	Reference Ties and Bench Marks
G.2 - 3	Horizontal Control Map & Control Point List
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
W Sheets	Mainline Cross Sections
W.1 - 17	Cross Sections Legend & Symbol Information Sheet * Color Plan Sheets

Project Location Map on sheet A.2



DESIGN DATA RURAL

2018	AADT	4040	V.P.D.
20--	AADT	--	V.P.D.
20--	DHV	--	V.P.H.
TRUCKS		12	%
Total			
Design ESALs		--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Allison Smyth	Primary Signature Block

D3 PLAN – Date: 3-12-2021
B2 PLAN – Date: 4-16-2021
D9 PLAN – Date: 5-4-2021

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN – Date: 2-26-2021

FILE NO.

ENGLISH

DESIGN TEAM Smyth \ Narigon \ Vais

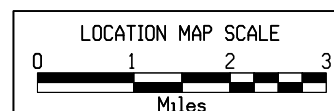
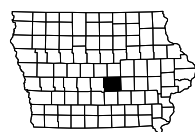
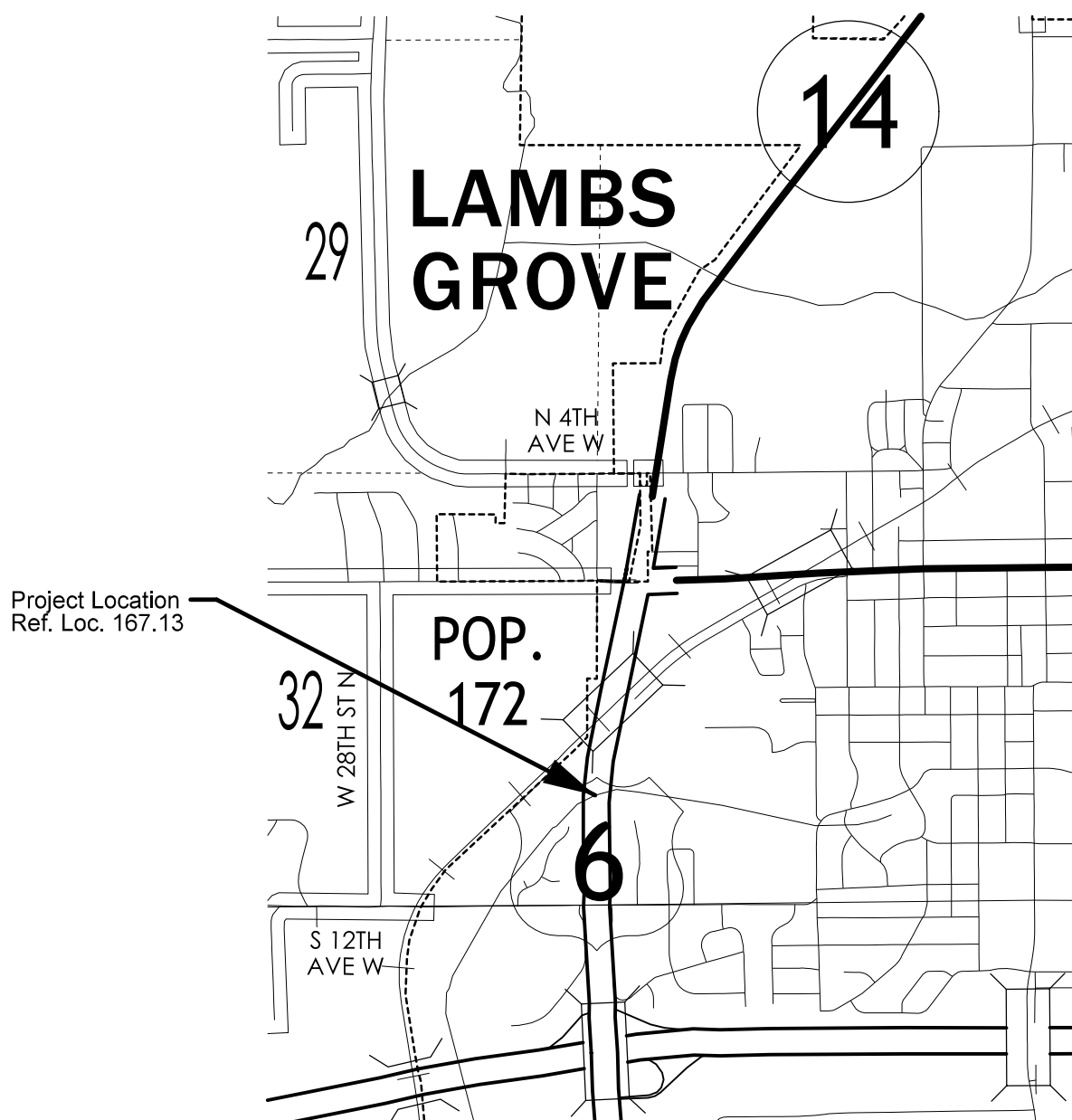
JASPER COUNTY

PROJECT NUMBER

NHSN-006-4(192)--2R-50

SHEET NUMBER

A.1



FIELD EXAM CHECKLIST			FIELD EXAM CHECKLIST		
1 - Duration of project? 2 - Speed Limit 3 - Speed Limit during construction 4 - Is sight distance a problem? 5 - Patching quantities-full depth, partial depth, and surface. 6 - Does patching need to be done in the project area or do the construction limits need to be extended? Who will provide locations of patches by milepost? 7 - Are rumble strips going to be placed with this project or a separate project? 8 - Leveling and strengthening locations and lengths (i.e. station to station). 9 - Areas of haul-outs. 10 - Any survey needed? (culvert extensions, safety dikes,right turn lanes,horizontal curves, ext...) 11 - Do any of the utilities need to be relocated (power/telephone poles) either permanently or temporarily for construction? 12 - Names and addresses of affected utility companies. 13 - Locations of entrances to be reshaped. 14 - Are there existing drainage problems?			15 - Note any special features not shown on plan. 16 - Note condition of existing culverts. 17 - Names of affected special events. 18 - Locations of mailboxes to be relocated to a minimum of 8' from the pavement edge. 19 - Number and location of EF joints. 20 - Disposition of bridge handrail and guardrail, including posts. 21 - Inventory of existing guardrail. 22 - Remove & Reinstall Signs - District Maintenance or by the Contractor? 23 - Longitudinal joint repair locations (station to station). 24 - Locations and quantities of engineering fabric to be placed over random cracks. 25 - Tabulation of adjustment of fixtures. 26 - Clearing and grubbing quantities - by unit or by area? 27 - Resurfacing Projects - Is District Survey able to preserve Section Corners & Points? If "no", then add these items under Construction Survey.		
FILE NO.	ENGLISH	DESIGN TEAM	JASPER COUNTY	PROJECT NUMBER	SHEET NUMBER
		Smyth \ Narigon \ Vais		NHSN-006-4(192)--2R-50	A.3

7:18:12 AM 3/1/2021 mvais pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\5000601020\DistrictDesign\500064192_A01.sht

FIELD EXAM CHECKLIST

- Contractor furnish borrow? (Yes) / (No)
- Full depth patches to be PCC? (Yes) / (No)
- Full depth PCC patches to be doveled? (Yes) / (No)
- Soils to determine and provide tabulation of subdrains? (Yes) / (No)
- Pollution Prevention Plan required? (Yes) / (No)
- Field Office? (Yes) / (No)
- Construction Survey and or Point Preservation by DOT or Contractor? See Dist. 1 Surveyor for this (DOT) / (Contractor).
- Survey by Office of Design? (Yes) / (No)
- Pavement markings for turn lanes as determined by the District? (Yes) / (No)
- Any RWIS or Traffic Recorder Sites within project limits? (Yes) / (No)

FINAL PROJECT CONCEPT STATEMENT

County: Jasper
PIN: 20-50-006-010
Project Number: NHSN-006-4(192)--2R-50
Location: 0.5 mi N of I-80 in Newton
Type of Work: Pipe Culverts
Project Directory: 5000601020

September 30, 2020

I. STUDY AREA



A. Project Description

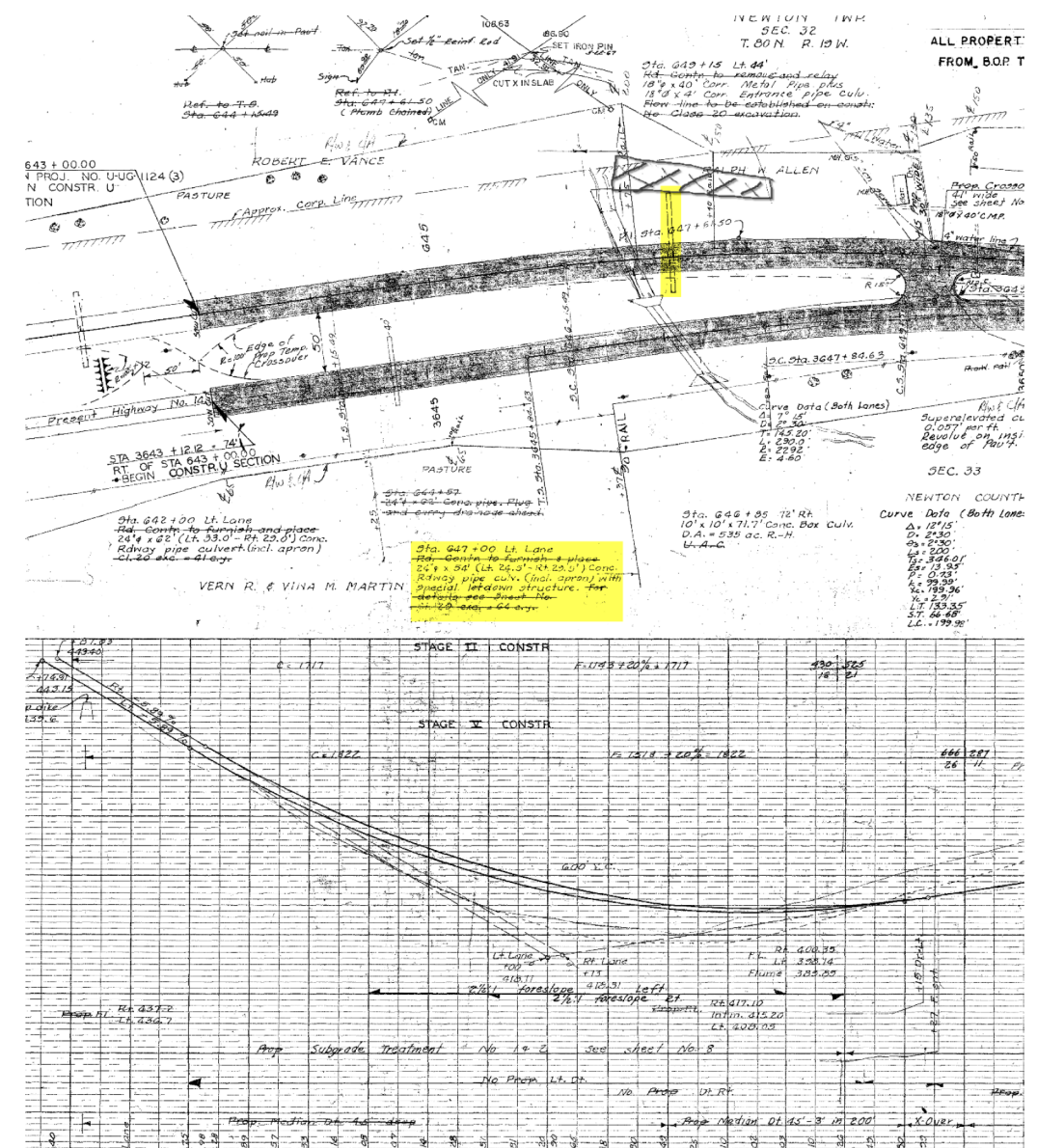
This project involves a failed median pipe letdown and ditch erosion on US 6 in Newton.

B. Need for Project

The pipe failure is resulting in loss of foreslope. Degradation of the west ditch is occurring, partially due to this.

C. Present Facility

U.S. 6 was constructed in 1963, is classified as a principle arterial route and is a maintenance service level “B” road. U.S. 6 is on the National Highway System (NHS). The speed limit in the project area is 45 mph.



II. PROJECT CONCEPT

A. Feasible Alternative

Add connected pipe joints to the last section of RCP, extend the RCP, provide a riprap flume and rebuild the foreslope.

Shape approximately 200' of the west ditch and armor with engineering fabric and riprap.

Shape and armor the inlet with engineering fabric and erosion stone.

It appears that additional permanent ROW will not be needed to complete this repair.

Cost Estimate:

Estimate Items Report

Version D00-Concept
Project NHSN-006-4(192)--2R-50

Item Number	Item Description	Units	Quantity	Unit Cost	Suggested Cost	Line Total
2101-0850001	CLEAR+GRUBB	ACRE	1.000	\$2,500.00		\$2,500.00
2102-2710070	EXCAVATION, CL 10, RDWY+BORROW	CY	200.000	\$50.00		\$10,000.00
2416-0100024	APRON, CONC, 24"	EA	1.000	\$2,000.00	\$1,685.40	\$2,000.00
2416-1180024	CULV, CONC RDWY PIPE, 24"	LF	10.000	\$150.00	\$91.82	\$1,500.00
2422-1723024	CULV, UNCL RDWY PIPE, 24"	LF	30.000	\$150.00	\$0.00	\$4,500.00
2507-3250005	ENGINEER FABRIC	SY	100.000	\$6.00	\$0.00	\$600.00
2507-6800061	REVTMENT, CLASS E	TON	100.000	\$70.00	\$47.76	\$7,000.00
2507-8029000	EROSION STONE	TON	20.000	\$50.00	\$0.00	\$1,000.00
2528-8445110	TRAFFIC CONTROL	LS	1.000	\$5,000.00		\$5,000.00
2533-4980005	MOBILIZATION	LS	1.000	\$5,000.00	13.14%	\$5,000.00
PCT-999	UNQUANTIFIED	% of Project	51,178.330	30.00%		\$15,353.50
				Total:		\$54,453.50

B. Traffic Control Analysis

Traffic will be maintained by use of single lane closures.

C. Recommendations

It is recommended that the foreslope is rebuilt and the ditch shaped and armored, as described.

The District 1 office will coordinate the plan preparation with assistance from

Preliminary Bridge and the Soils and preliminary survey sections of Design.
The estimate for this is \$ 55,000.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor.

E. Special Considerations

There are no bike paths or sidewalks adjacent to this project; therefore, no ADA accommodations are planned in conjunction with this project.

No ROW will likely be required for this project.

Standard survey coverage will be required and will be completed by Preliminary Survey.

F. Project Schedule

Event Description	Finish Date
D00 - Pre-Design Concept	8/28/2020
TE0 - Desktop Review	10/2/2020
U00 - Preliminary Utility Review	10/2/2020
W00 - Preliminary Wetland Review	10/2/2020
D01 - Survey Plan and Photogrammetry (DTM)	11/6/2020
D02 - Design Field Exam	12/4/2020
D03 - Plans for Preliminary Bridge	12/18/2020
H00 - Cultural Resources Assessment	1/8/2021
B02 - Drainage Design and Miscellaneous Layout to Office of Design	2/19/2021
A01 - Approval of DOT Commission - Inclusion in 5-Year Program	6/8/2021
D09 - Final Miscellaneous Plans	5/4/2021
L04 - Letting-Miscellaneous	7/20/2021
C02 - Construction Period (Field Work)	11/19/2021

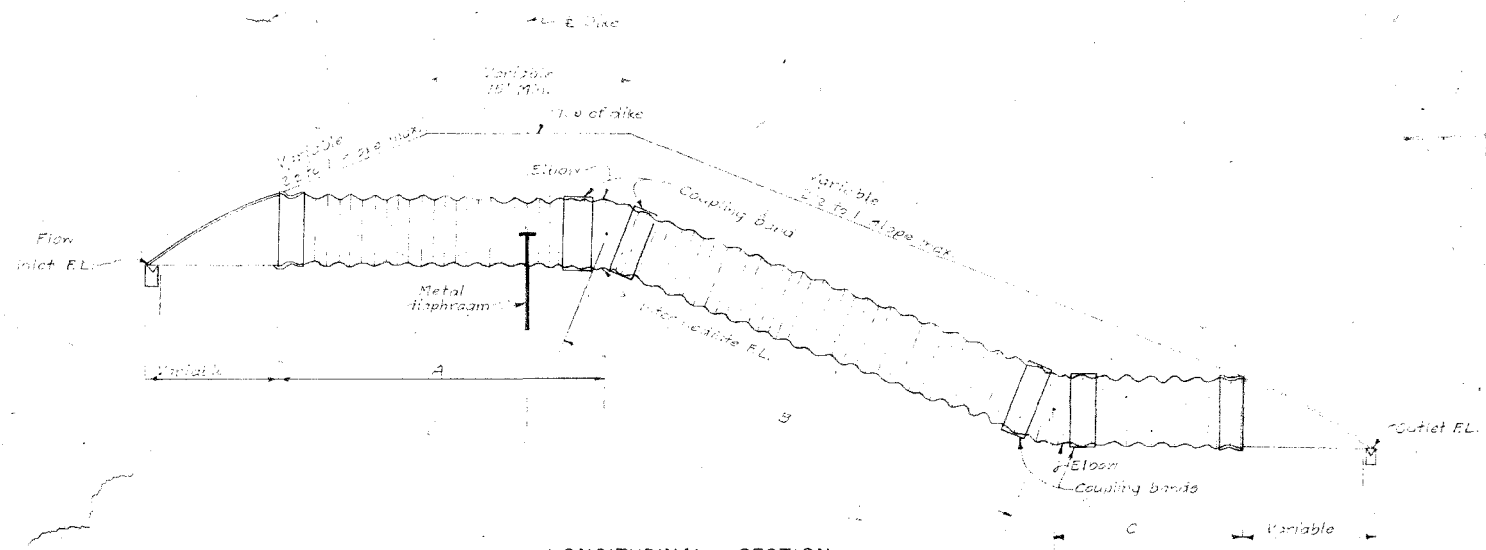
G. Program Status

This project is not currently programmed but should be placed on the monitor list for FY2022 NR funding.

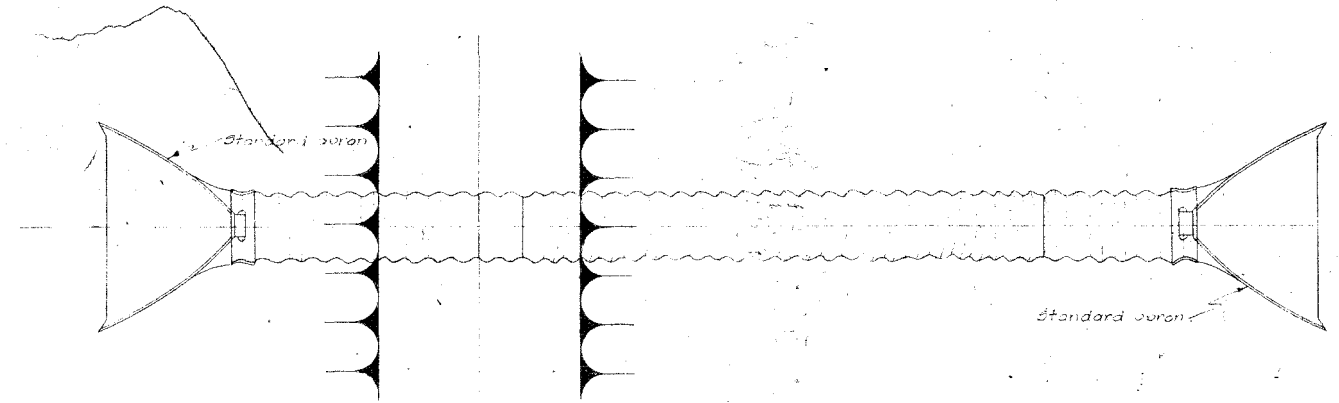
JMN

Cc: C. Purcell	M. J. Kennerly	K. D. Nicholson
S. J. Megivern	J. S. Nelson	B. Walls
M. A. Swenson	R. A. Younie	
K. Brink	D. L. Newell	K. Olson
J. W. Laaser-Webb	W. A. Sorenson	D. E. Sprengeler
E. C. Wright	M. E. Ross	A. A. Welch
N. M. Miller	C. C. Poole	B. Bradley
B. E. Azeltine	B. D. Hofer	T. D. Crouch
S. J. Gent	S. Anderson	P. C. Keen
J. Selmer	K. K. Patel	S. Godbold
D. R. Claman	C. Brakke	T. Hanson
F. Todey	E. Engle	M. Hobbs
J. Bartholomew	N. Cuva	D. A. Popp
D. L. Maifield	J. Vortherms	S. Nielsen
E. D. Gansen	H. Beach	M. Nop
W. W. Musgrove	M. Ortiz-Pagan	V. Brewer
J. Garton	B. Walls	M. Sloppy
M. J. Donovan	T.J. Gustafson	J. Woodcock
M. Dell	L. Starbuck	S. Nixon
G. Moyle	G. Kretlow	
N. Woody	D. Skogerboe	D. Wells

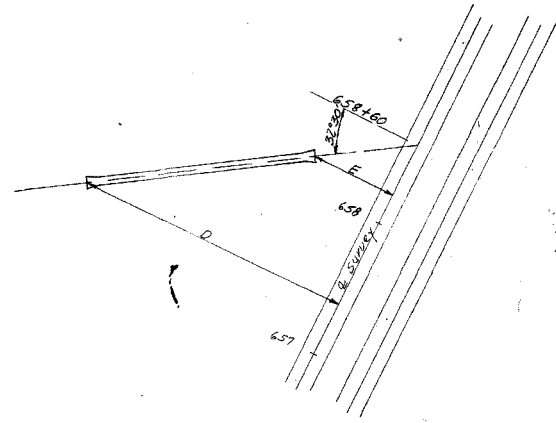
FILE NO.	DESIGN TEAM	PROJECT NO.	SHEET NO.	TOTAL SHEETS
U-UG-1124	Smyth \ Narigon \ Vais	U-UG-1124	10	49



LONGITUDINAL SECTION



PLAN



TABULATION OF CORRUGATED METAL LETDOWN STRUCTURES																	
STATION		LOCATION		SIZE OF PIPE	CORRUGATED METAL PIPE				TYPE "A" DIAPH- RAGM	ELBOWS NO.	METAL APRON NO.	FLOW LINE ELEVATIONS			CLASS 20 EXG.	DIKE	
INLET	OUTLET	D	E		INLET A	SLOPE B	OUTLET C	TOTAL				INLET	INTER MEDIATE	OUTLET		STATION	TOP ELEV.
657+80.86	658+32	124.67	44'	30"	45'	30'	13'	98'	1	2-17"30"	2	445.0	444.24	434.07	102	+	453.0
* See Plan & Profile Sheet																	

Note: For details of coron, diaphragm and pertinent notes see Standard design sheet, No. RF-5 & RF-7 (sheet No. 19 & 20)

This Sheet
For Information Only

CORRUGATED METAL PIPE
LETDOWN STRUCTURES
FOR
SIDE DITCHES

ET-3

SURVEY SYMBOLS

-
- FENO MONUMENT
-
- CP Control Point
-
- SH Paved Shoulder
-
- EP Edge of Paved Roads (ML or SR)
-
- C Centerline BL of Road (ML or SR)
-
- SNP Unpaved Shoulder
-
- ENP Edge Paved Entrance & Park Lot
-
- ENT Centerline BL of Entrance
-
- BL Topo Breakline
-
- D Centerline Draw or Stream (Down)
-
- GU Gutter In Front of Curb
-
- CU Back of Curb
-
- GR Ground Shot
-
- PLG Location of General Photo
-
- SOP Size of Pipe or Culvert
-
- PIP Pipe Culvert
-
- CON Concrete or A/C Slab
-
- LUM Luminaire
-
- PPA Power Pole Co. 1
-
- TPD Telephone Pedestal
-
- EL1D Electric Line Co. 1 - Quality D
-
- TL1D Telephone Line Co. 1 - Quality D

UTILITY LEGEND

This is NOT a POINT 25 Project and is not subject to the provisions of IAC 761-115.25.

-E1-

Alliant Energy
Mary Montgomery
PO Box 351
Cedar Rapids, IA 52406-9874
(319) 786-4768
MaryMontgomery@alliantenergy.com

-TV-

Mediacom Communications Corporation
Ryan Gainuss
2205 Ingersoll Ave
Des Moines, IA 50312
(515) 246-1890
Rainuss@mediacomcc.com

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design	Color No.	
Green	(2)		Existing Topographic Features and Labels
Blue	(1)		Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)		Existing Utilities
SHADING	Design	Color No.	
Yellow	(4)		Highlight for Critical Notes or Features
Red	(3)		Delineates Restricted Areas
Lavender	(9)		Temporary Pavement Shading
Gray, Light	(48)		Proposed Pavement Shading
Gray, Med	(80)		Proposed Granular Shading
Gray, Dark	(112)		Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)		Grading Shading
Tan	(8)		Proposed Sidewalk Shading
Blue, Light	(230)		Proposed Sidewalk Landing Shading
Pink	(11)		Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design	Color No.	
Green	(2)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

Reference Point

Station

Survey Line

Section Corner

Ground Line Intercept

Saw Cut

Guardrail

Trench Drain

HighTension Cable Guardrail

Sheet Pile

Pavement Removal

Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

Proposed Right-of-Way

Existing Right of Way

Existing and Proposed Right-of-Way

Easement and Existing Right-of-Way

Easement (Temporary)

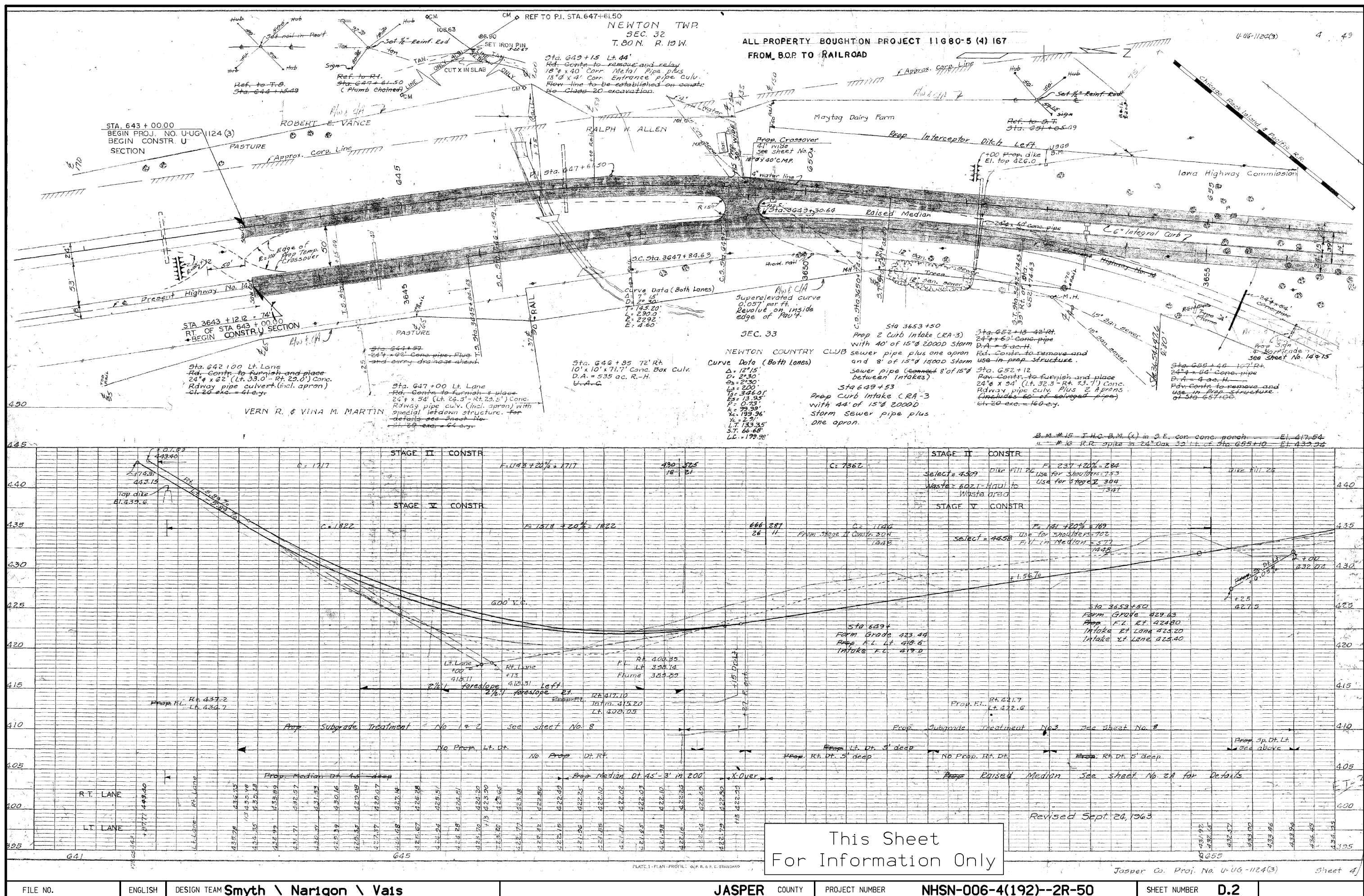
Easement

Access Control

Property Line

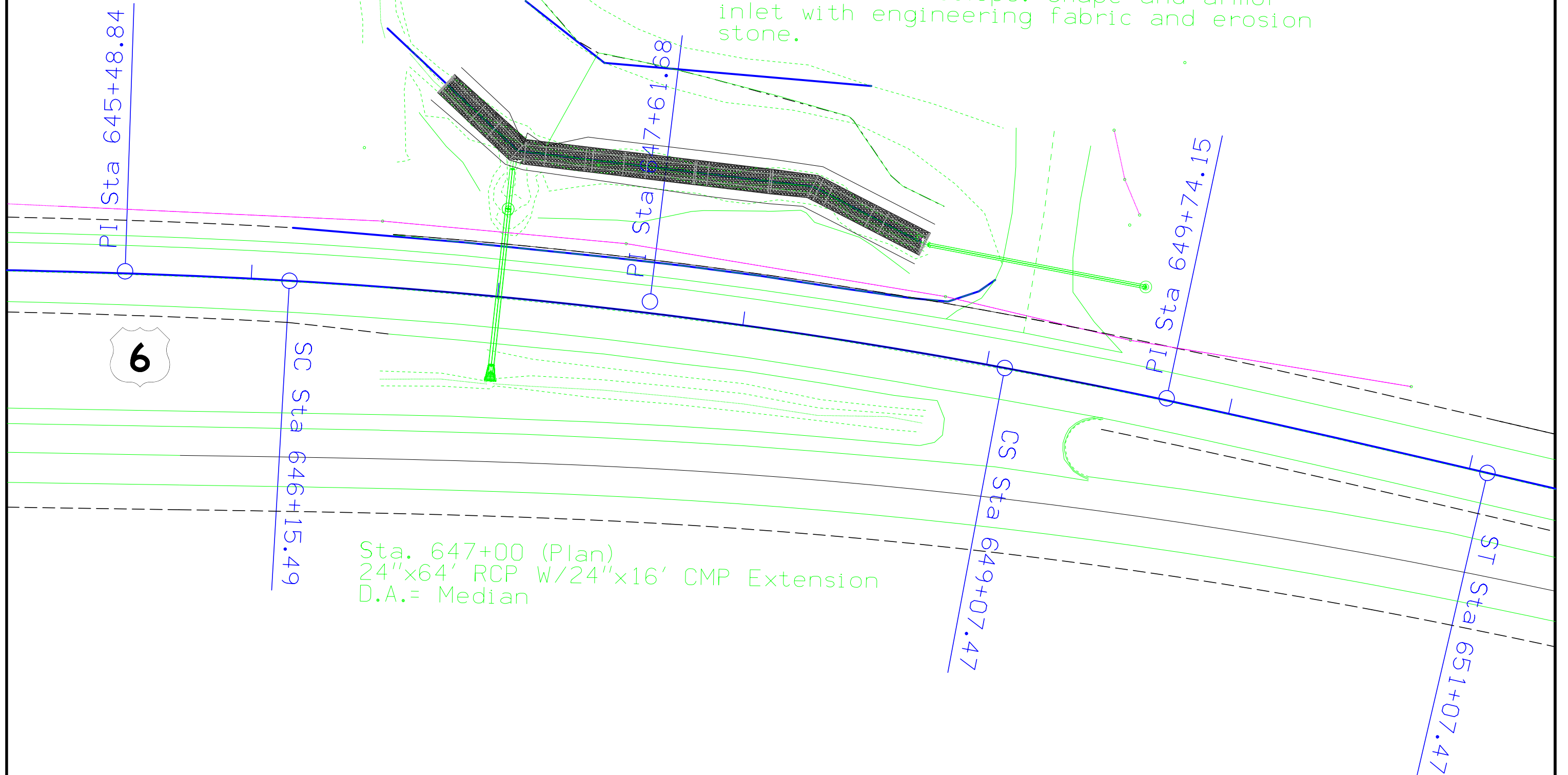
PLAN AND PROFILE
LEGEND AND SYMBOL
INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)

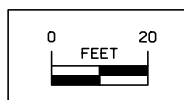


Newton TWP.
T-80N R-19W
SEC. 32

Add connected pipe joints to the last
section of RCP, provide a riprap flume
and rebuild foreslope. Shape and armor
inlet with engineering fabric and erosion
stone.



Sta. 647+00 (Plan)
24"x64' RCP W/24"x16' CMP Extension
D.A.= Median



Survey Information

County: Jasper
SAP 694.2
PIN: 20-50-006-010
Project Number: NHSN-006-4(192)--2R-50
Location: 0.5 mi N of I-80 in Newton
Type of Work: Pipe Culverts
Project Directory: 5000601020

Party Personnel

Nels Sutherland- Party Chief
Myron Fox- Assistant Survey Party Chief

Date(s) of Survey

Begin Date 09/21/2020
End Date 10/08/2020

General Information

Measurement units for this survey are US survey feet. This survey is for proposed Culvert and Pipe repair on State Hwy 6. Project datum and control information is provided by Design Survey Office. This project is a Full Field Survey.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12B). Benchmarks were placed throughout the project using post processed static observations relative to laRTN Base Network. A minimum of 6hrs of data was simultaneously collected on each of the primary control points

Pt# M01, Jasper County GPS Monument, was checked for vertical tolerance. The difference was less than 0.10ft.

Horizontal Control

The project coordinate system for this survey is laRCS Zone 09 (U.S. Survey Feet). This survey control is relative to laRTN reference stations. laRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00.

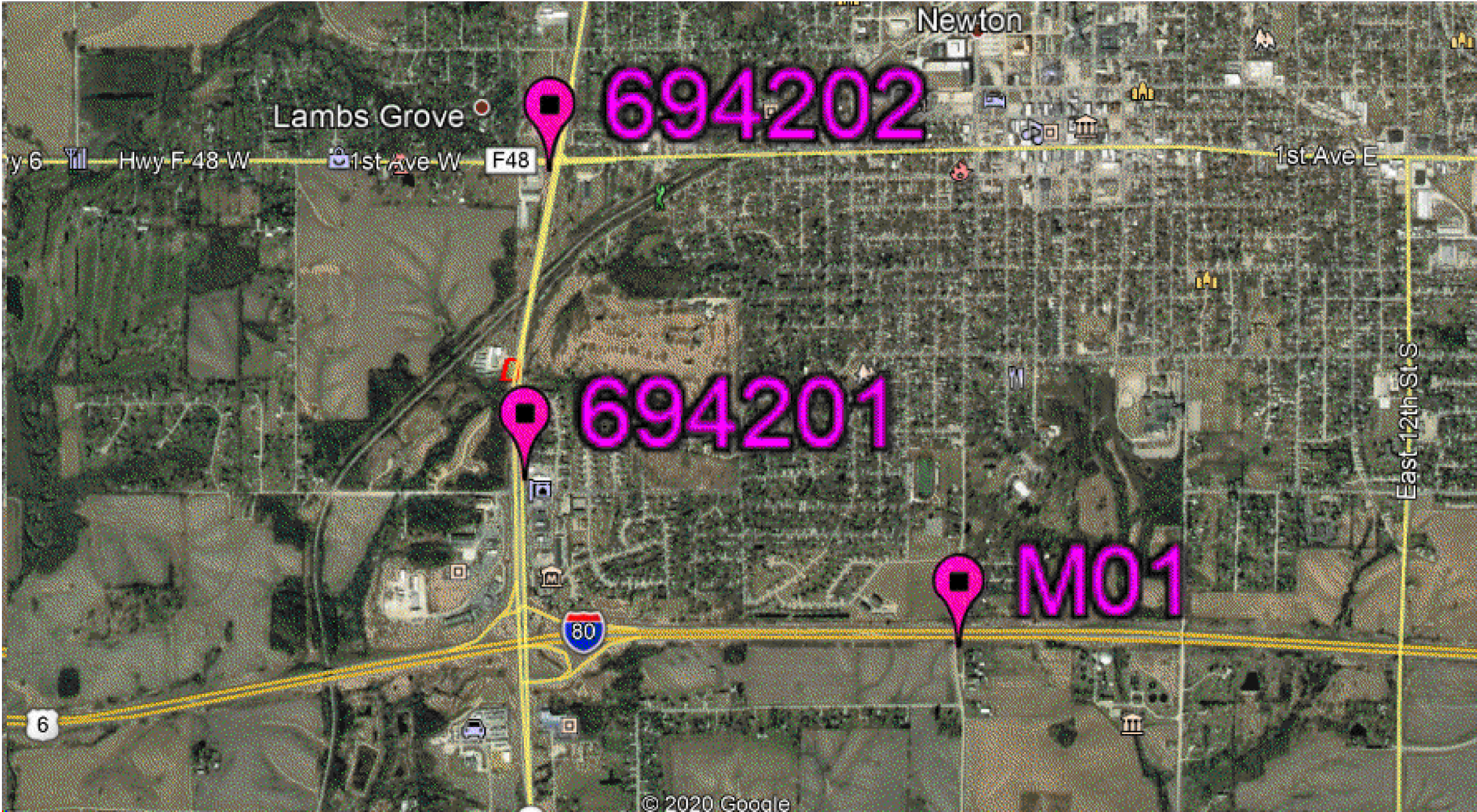
Pt# M01, Jasper County GPS Monument, was checked for horizontal tolerance. The difference was less than 0.10ft.

Alignment Information

The horizontal alignment for this survey was provided by the District 1 Land Survey Office.

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points
Primary control is for use with RTK base stations and for RTN validation.
Future surveys will use primary project control to establish temporary
control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 9

Coordinate listing from next sheet will be used with 1aRTN for monument
recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 9

Project Control Marks are Benchmarks

Point Name	North	East	Height	Code Description
694202	7727987.278	19429201.850	928.171	FENO2 MON FROM THE INTERSECTION OF 1ST AVE AND SBL HWY6 S 125' AND 49' W OF CL SBL HWY6 4" BELOW SURFACE
M01	7722345.364	19434007.284	947.368	CP JASPER CO CONC S 150' FROM THE INTERSECTION OF W 4TH ST AND 180 4' E OF EP AND 38' SE OF SE WING WALL
694201	7724356.786	19428874.935	915.302	FENO1 MON FROM THE INTERSECTION OF S 12TH AVE AND HWY6 N 178' AND 39' E OF EP NBL 4" BELOW SURFACE

108-23A 08-01-08 TRAFFIC CONTROL PLAN Traffic shall be maintained on US 6 at all times with use of single lane closures.																																																			
108-25 10-21-14 511 TRAVEL RESTRICTIONS <table><tr><th>Route</th><th>Direction</th><th>County</th><th>Location Description</th><th>Feature Crossed</th><th>Object Type</th><th>Maint. Bridge No., Structure ID, or FHWA No.</th><th>Type of Restriction</th><th>Existing Measurement</th><th>Construction Measurement</th><th>Construction Measurement as Signed</th><th>Projected As Built Measurement</th><th>Remarks</th></tr><tr><td></td><td></td><td></td><td>None expected.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>													Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks				None expected.																						
Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks																																							
			None expected.																																																
111-01 04-17-12 COORDINATED OPERATIONS Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area. <table><tr><th>Project</th><th>Type of Work</th></tr><tr><td>None provided.</td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>													Project	Type of Work	None provided.																																				
Project	Type of Work																																																		
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FILE NO. ENGLISH DESIGN TEAM Smyth\Narigon\Vais Jasper COUNTY PROJECT NUMBER NHSN-006-4(192) - -2R-50 SHEET NUMBER J.1																																																			

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